

AMERIK, V.V.

(Chemical Sciences)

V. V. AMERIK

CHEMIST

(1)

Sov. JPRS 59345
26 JUNE 1973

NEW NONCOMBUSTIBLE POLYPROPYLENE DEVELOPED AT MOSCOW REFINERY
[Article by I. Dzhanarova, "Soviet Polypropylene" Moscow, Moskovskaya Pravda, Russian, 20 May 1973, p. 4]

A new form of it has been created in a plant laboratory.

Polypropylene production was first mastered in our country a few years ago. Efforts to improve its properties have not halted since then.

Scientists of the Mosgor Oil Refinery have developed and checked new types of polypropylene -- cold-resistant, heat-resistant, of enhanced hardness and elasticity, noncombustible, corrosion-resistant, glass-oriented (steklonapravlennyy) -- under industrial conditions.

Previously, raw material which could have been used to make polypropylene was flared off. Since the department which produces this material -- large amounts of waste material are used here -- went into operation at the plant the dark-red flare has been transformed into an orange-gold one. After separating and scrubbing the cracking gases and pyrolysis, a monomer -- propylene -- is isolated. They polymerize this under pressure and in the presence of a catalyst.

The finished polypropylene product is a white granular powder. It resembles pure, new-fallen snow. To obtain polymer granules suitable for processing, the powder is mixed with special additives and dyes.

In the polypropylene processing department they make granules of various colors into manufactures. Here they are transformed into pipe for water supply and for pumping liquid fuels, marine cable, cord, reinforced film which is used successfully for glazing greenhouses and hotbeds, and fiber which is used in making synthetic carpets.

2/2 026

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0102309

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INFLUENCE OF REACTION CONDITIONS (TIME (5 MIN, 5 HR), CONC. OF MONOMER AND TICI SUB3, MACRO CHAINS IN POLYMN. OF PROPYLENE (II) (MIXED WITH PROPANE) CATALYZED BY 4:1 ET SUB2 ALCL AND TICI SUB3 MIXTS. WAS STUDIED. MOL. WTS., CALCD. FROM POLYMER INTRINSIC VISCOSITY DETNS. IN DECALIN, INCREASED ABRUPTLY WITH REACTION TIME AND TEMP. WHETHER MONOMER CONC. WAS DECREASING OR CONST. INCREASING TICI SUB3 CONC. (0.4 TO 3.5 TIMES 10 PRIME NEGATIVE 2 MOLE-1.) DID NOT INFLUENCE CHAIN VIABILITY, BUT DECREASED INTRINSIC VISCOSITY, PROBABLY DUE TO INCREASED NOS. OF ACTIVE CENTERS. THE LINEAR DEPENDENCE OF POLYMER YIELD ON MOL. WT. AT DIFFERENT REACTION TIMES AND TICI SUB3 CONCNS., EXCLUDING INITIAL NON STEADY STATE REGIONS, INDICATED FREEDOM FROM MOL. CHAIN TERMINATION AND AFFIRMED THE EXISTENCE OF LIVING MACROMOLS. IN THE SYSTEM. SUCCESSIVE POLYMN. OF II WITH ETHYLENE (0.13 TO 1 PERCENT), ISOBUTYLENE (III) (4 TO 4.8 PERCENT), VINYL CYCLOHEXANE, AND STYRENE (1 TO 1.2 PERCENT) AND III (3 TO 4.1 PERCENT) GAVE BLOCK COPOLYMERS HAVING RESISTANCE TO FREEZING IMPACT STRENGTH 2 TO 4 AND 2 TO 3 TIMES, RESP., GREATER THAN THOSE OF I.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--PREPARATION OF BLOCK COPOLYMERS OF PROPYLENE AND APHYA OLEFINS -U-
AUTHOR--(05)-YAKOBSON, F.I., AMERIK, V.V., PETROVA, V.F., SHTEYNBAK, V.SH.,
IVANYUKOV, D.V.
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, (3), 11-13
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--COPOLYMER, PROPYLENE, CATALYTIC POLYMERIZATION, TITANIUM
CHLORIDE, INTRINSIC VISCOSITY, ETHYLENE, ISOBUTENE, STYRENE,
CYCLOHEXANE, FREEZING, IMPACT STRENGTH
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0259 STEP NO--UP/0191/70/000/003/0011/0013
CIRC ACCESSION NO--AP0102309
UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70
CIRC ACCESSION NO--AP0109971
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROCESS OF DECOMPN. OF A CH
SUB4-C SUB2 H SUB6-C SUB2 H SUB4-C SUB2 H SUB2 MIXT. IN CONTACT WITH AL
SUB2 O SUB3 HEAT CARRIERS WAS DESCRIBED BY 11 EQUATIONS INCLUDING
MATERIAL AND THERMAL BALANCES. THE EQUATIONS WERE RESOLVED BY THE RUNGE
KUTTA METHOD AT VARIOUS TEMPS. OF THE HEAT CARRIER IN THE LOWER PART OF
THE REACTOR AS A FUNCTION OF THE REACTOR TEMP. THE THERMAL EQUIL. OF THE
GAS AND HEAT CARRIER STREAMS WAS ESTABLISHED IN 0.05 M, THE TEMP.
DIFFERENCE BEING REDUCED TO LESS THAN OR EQUAL TO 4DEGREE SK. THE
DECOMPN. OF CH SUB4 WAS INTENSIVE AT SIMILAR TO 1500DEGREE SK, AT WHICH
THE TEMP. DIFFERENCE OF THE STREAMS INCREASED TO 30DEGREE SK.

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UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--MATHEMATICAL DESCRIPTION OF THE THERMAL CONTACT PREPARATION OF
HYDROGEN -U-
AUTHOR--OPRISHKO, A.A., AMERIK, B.K., ZHOROV, YU.M., PASKUDSKAYA, L.A.,
YAKUNIN, O.V.
COUNTRY OF INFO--USSR
SOURCE--KHIM. TEKHNOLOG. TOPL. MASEL 1970, 15(3), 38-40
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--THERMODYNAMICS, THERMAL DECOMPOSITION, METHANE, ETHANE,
ETHYLENE, ACETYLENE, INDUSTRIAL PRODUCTION, HYDROGEN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/2039 STEP NO--UR/0065/70/015/003/0038/0040
CIRC ACCESSION NO--AP0109971
ZZZZZZZZZZZZ UNCLASSIFIED

USSR

UDC: 681.5

AMERBAYEV, V. M.

"Sign of a Number and of Nonmodulus Operations in a Nonpositional System of Notation (the System of Residual Classes)"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic Technology. Scientific and Technical Collection. Microelectronics), 1971, vyp. 4(30), pp 93-104 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V900)

Translation: The author considers a form of sign representation for relative numbers. The essence of this representation reduces to treating the relative numbers in the counting range as absolutely minimum residues, while the remainders of such numbers with respect to the moduli of the system are considered in the class of least nonnegative residues. Algorithms of nonmodulus operations are studied for numbers with a latent form of sign in a nonpositional system of notation. An analysis of these algorithms shows that the assumed form for the sign is the most natural for nonpositional arithmetic since modulus operations are performed without any corrections for sign, and the execution of nonmodulus operations requires no preliminary information on the sign. V. Mikheyev.

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- 54 -

USSR

AMENZADE, R. Yu., BUBUTEYSHVILI, O. L., Tezisy dokl. Nauch. konf., posvyashchen. 50-letiyu obrazovaniya SSSR. Azerb. un-t, Yerevan, 1972, pp 170-171

located elliptical opening is examined. The absence of slippage at the points of contact is assumed. Also investigated is the problem under the condition of free sliding at the points of contact of a rigid stamp and an elastic half-plane. O. I. Terebushko.

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USSR

UDC 539.3:534.1

AMENZADE, R. Yu., BUBUTEYSHVILI, O. L.

"Buckling of a thin Eccentric Ring Made of a Nonlinear Material Considering the Load. Plane Contact Problems"

V sb. Tezisy dokl. Nauch. konf. posvyashchen. 50-letiyu obrazovaniya SSSR. Azerb. un-t (Topics of Papers. Scientific Conference associated with the 50th Anniversary of Education in the USSR. Azerbayzhan University -- Collection of Works), Yerevan, 1972, pp 170-171 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V356)

Translation: The problem of the depression of a thin eccentric ring is considered where the material is subject to a nonlinear elasticity law in the form

$$\epsilon = \sigma/E[1 + (\sigma/\sigma_0)^2].$$

The effect of pressure relief is taken into account. The resulting system of nonlinear ordinary differential equations of the Cauchy problem is integrated numerically. The effect of pressure relief is small. The problem of depression of a rigid stamp into an elastic half-plane with an arbitrarily

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2/2 017

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0052230

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY CONSTRUCTING "TREES OF RELATIONSHIP OF SYNTACTICAL SUBORDINATIONS" THE AUTHORS STUDIED WRITTEN SPEECH OF NORMALS AND IN PARANOID SCHIZOPHRENICS. IT WAS ESTABLISHED THAT THE LAW OF LANGUAGE PROJECTIVELY, EXPRESSED IN A PREVALENCE OF PROJECTIVE STRUCTURES OVER NON PROJECTIVE ARE NOT IMPAIRED IN PATIENTS. THE CORRELATION IN THE QUALITY OF DEXTRA AND SINISTRAL SYNTAXIS SHOWS THAT THE PROCESSES OF SUCCESSIVE SYNTHESIS IN SPEECH ACTIVITY IN NORMALS AS WELL AS IN SCHIZOPHRENIC PATIENTS PREVAILS OVER PROCESSES OF FORSTALLING SYNTHESIS. HOWEVER, IN PATIENTS THIS PREVALENCE IS EXPRESSED LESS SIGNIFICANTLY. IN OTHER WORDS, THE SPEECH ACTIVITY PROCEEDS IN SUCH CASES WITH A HEAVIER LOADING OF CANALS OF FORESTALLING SYNTHESIS. THE DISTRIBUTION OF THE LENGTH OF SYNTACTICAL CONNECTIONS IN THE NORMALS COMPARED TO THE SPEECH OF SCHIZOPHRENICS IS NEARER TO THE EXPONENT. THE LENGTH OF SYNTACTICAL CONNECTIONS IN PATIENTS IS SIGNIFICANTLY HIGHER THAN IN NORMALS. THIS IS AN OBJECTIVE INDEX OF A CUMBOUS SYNTACTICAL STRUCTURE AND MAY BE EXPLAINED BY AN INERTIA OF OPERATIVE MEMORY.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--CONCERNING THE MATHEMATICAL LINGUISTICAL ANALYSIS OF THE
SYNTACTICAL LAYER OF SPEECH IN SCHIZOPHRENIC PATIENTS -U-
AUTHOR-(03)-AMENEV, G.A., BAYRAMOVA, L.K., NIKITINA, YE.V. *A*

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRIL IMENI S. S. KORSAKOVA, 1970,
VOL 70, NR 3, PP 408-413
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MATHEMATIC ANALYSIS, SPEECH, SCHIZOPHRENIA, LINGUISTICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/0793

STEP NO--UR/0246/70/070/003/0408/0413

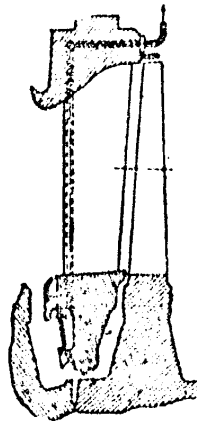
CIRC ACCESSION NO--AP0052230

UNCLASSIFIED

USSR

KIRILLOV, I. I. et al., USSR Author's Certificate No 332244

moisture into the lower chamber. 2. A modification of this moisture collector distinguished by the fact that moisture-catching troughs are provided in the lower chamber.



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USSR

UDC: 621.165-226-758.3

KIRILLOV, I. I., FADDEYEV, I. P., ~~AMELYUSHKIN, V. N.~~, KOTOV, Yu. V., VOLCHKOV, V. I., RADIK, S. V., Leningrad "Order of Lenin" Polytechnical Institute imeni M. I. Kalinin

"A Moisture Collector"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 332244, Division F, filed 11 Jun 70, published 14 Mar 72, p 134

Translation: This Author's Certificate introduces: 1. A moisture collector designed chiefly for a wet vapor turbine. The device contains collector chambers with drain channels installed in the body of a diaphragm over the hub of the working wheel. As a distinguishing feature of the patent, the efficiency of moisture extraction is increased by making the chambers in the form of annular grooves one over the other. The upper groove is connected by slits to the flow part on the vapor injection side, and the hub is tapered with increasing diameter in the path of the vapor with an annular projection at maximum diameter to throw the

USSR

UDC 621.32.032.75

RODICHEV, Yu. M., CHEMERIS, A. N., PEREVORUKHOV, G. I., AMEL'YANOVICH, K. K.,
PODGORNYI, L. N., KRAYNOVA, E. A., Kiev, Problemy Prochnosti, No 8, 1972,
pp 26-29.

The ceramic spheres are found to be capable of withstanding compressive stresses of up to 70% of the ultimate strength without residual changes in shape or dimensions, as long as the walls of the spheres do not have significant thickness variations.

USSR

UDC 621.32.032.75

RODICHEV, Yu. M., CHEMEPIS, A. N., PEREVOZUEV, G. I., AMEL'YANOVICH, K. K.,
PODGORNYI, L. N., KRATKOVA, E. A., (Kiev)

"Supporting Power of Spherical Ceramic Shells Under External Pressure"

Kiev, Problemy Prochnosti, No 8, 1972, pp 26-29.

Abstract: Results are presented from tests of spheres of an aluminum ceramic under external pressure conditions. It is established that the initial geometric imperfections of the shells, characteristic for ceramic technology, have just as great an influence on the stability of ceramic spheres as on metallic spheres. The high strength of the aluminum ceramic in the shells, evidenced both with single cycle and repeated cycle application of external pressure, is noted. It is remarked that an earlier work [Stachiv, I. D., "Design Parameters for Glass and Ceramic Underwater Structures," Ceramic Age, Vol 81, No 6, 1965] recommends that k be taken as 0.7 in the Zolli formula for critical pressure. The results of this study show that the value of k for spheres with deviations typical for ceramic technology may be lower. The following formula is recommended for aluminum ceramic spheres with R/h ratios of 40:

$$P_{cr} = \frac{0.38-0.10}{\sqrt{1-\mu^2}} E (h/R)^2 \quad (6)$$

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USSR

UDC 621.32.052.75

RODICHEV, Yu. M., CHEMERIS, A. N., PEREVORUKHOV, G. I., AMEL'YANOVICH, K. K.,
PODGORNYI, L. N., KRAYNOVA, E. A., Kiev, Problemy Prochnosti, No 8, 1972,
pp 26-29.

The ceramic spheres are found to be capable of withstanding compressive stresses of up to 70% of the ultimate strength without residual changes in shape or dimensions, as long as the walls of the spheres do not have significant thickness variations.

2/2 033

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123883

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A METHOD AND PROGRAM FOR CALCULATING THE TWO DIMENSIONAL STRESS STRAIN FIELDS UNDER ELASTIC AND ELASTIC PLASTIC STRAINS AND STEADY STATE CREEP. AN ALLOWANCE IS MADE FOR STRESS CONCENTRATIONS, REAL DEFORMATION CURVES, AND DEPENDENCE OF MATERIAL CHARACTERISTICS ON TEMPERATURE. PLATES WITH AN ARBITRARY CONTOUR ARE CONSIDERED IN THE POLAR COORDINATE SYSTEM. AS AN EXAMPLE, A CALCULATION IS MADE OF A STRESS FIELD AROUND A HOLE IN A CYLINDRICAL SHELL SUBJECTED TO ELASTIC PLASTIC STRAINS, WITH ALLOWANCE FOR THE LOADING HISTORY. FACILITY: TSENTRAL'NYI NAUCHNO-ISSLEDOVATEL'SKII INSTITUT TEKHNologii I MASHINOSTROENIIA, MOSCOW, USSR.

UNCLASSIFIED

1/2 033

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--SOLUTION OF TWO DIMENSIONAL PROBLEMS CONCERNING ELASTIC PLASTIC STRAINS AND CREEP, USING A COMPUTER -U-

AUTHOR--(03)-AMELYANCHIK, A.V., GUTOROVA, YU.S., LAPTEVA, V.T.

COUNTRY OF INFO--USSR

SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, MAR. 1970, P. 58-62

DATE PUBLISHED----MAR 70

SUBJECT AREAS--PHYSICS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ELASTICITY THEORY, MATHEMATIC EXPRESSION, COMPUTER APPLICATION, STRAIN, STRESS ANALYSIS, CYLINDRIC SHELL STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--20J0/0111

STEP NO--UR/3663/70/002/000/0053/0062

CIRC ACCESSION NO--AP0123883

UNCLASSIFIED

USSR

UDC 669.71.472

AMEL'KOVICH, D. I., VEDERNIKOV, G. F., DROBNIS, V. F., KLETSKO, N. L., OGURTSOV, G. M., SHIFMAN, G. A.

"Selection and Testing of Carbon Mass for Fastening of Nipples in Roasted Anodes"

Tr. Vses. N-i. i Projektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 71, pp. 111-117. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G156 by the authors).

Translation: Results are presented from laboratory and industrial testing of roasted anodes with nipples fastened in their carbon masses. The mass was packed into anodes with one square or cylindrical nipple receiver. The thickness of the layer of packed mass was 10-15 mm. The method of fastening of the nipples into the roasted anodes using the carbon mass allowed reliable suspension of the anodes, significantly decreased the voltage drop at the nipple-anode contact, and also simplified the process of pressing of anodes due to the elimination of the screw thread in the nipple receptacle. 4 figs; 2 tables.

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USSR

AMEL'KIN, V. V. et al, Differentsial'nyye Uravneniya, Vol 7,
No 12, 1971, pp 2131-2135

is obtained. On the assumption that $a = 0$ and $b > 0$ and that $\phi(z)$ is holomorphic near the origin of coordinates, equation (1) is examined under the condition that a small perturbation, periodic in time, affects it. The authors are associated with the V. I. Lenin Belorussian State Institute.

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Differential & Integral Equations

USSR

UDC 517.925.1

AMEL'KIN, V. V., GAYSHUN, I. V.

"Some Characteristics of Solutions of a Second-Order Equation"

Minsk, Differentsial'nyye Uravneniya, Vol 7, No 12, 1971,
pp 2131-2135Abstract: The second-order equation considered in this article
is of the form

$$\varphi(\ddot{\xi}) + a\dot{\xi} + b\xi = 0, \quad (1)$$

where $\varphi(z)$ is a continuously differentiable function defined for all $z \in (-\infty, +\infty)$, and $|\varphi'(z)| \geq \delta > 0$. By making the substitutions $\xi(t) = x(t)$, differentiating the resultant equation with respect to t , and setting $\dot{x} = y$, the system

$$\dot{x} = y, \quad \dot{y} = \frac{-bx - ay}{\varphi'(y)}$$

USSR

UDC: 51:155.001.57:681.3.06

VORONIN, Yu. A., AMEL'KIN, V. A.

"On Using the Recognition Approach to Solution of Inverse Kinematic Problems of Seismology"

V sb. Mat. probl. geofiz. (Mathematical Problems of Geophysics--collection of works), vyp. 2, Novosibirsk, 1971, pp 285-294 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V1028)

Translation: The authors consider problems on selection of a single model of a medium from some set of possible models and on constructing a general scheme for determining the parameters of this model. It is assumed in this connection that one singly connected hodograph which is explicitly or parametrically given by one or two algebraic or transcendental equations is used to obtain the wave pattern rather than a series of wave hodographs. The analysis is based on the ideas of pattern recognition. Bibliography of 11 titles. V. Mikheyev.

USSR

VORONIN, YU. A., AMEL'KIN, V. A., KHURRAMOV, A. D.

"Computer Software for Solving the Problems of Constructing Functions by Experimental Data"

V sb. Primeneniye mat. metodov i EVM pri poiske polezn. iskopayemykh. (Application of Mathematical Methods and Computers when Prospecting Minerals--collection of works), Novosibirsk, 1972, pp 133-149 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V493)

No abstract

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USSR

UDC: 621.373.531.3(088.8)

AFANAS'YEV, Yu. V., PONOMAREV, Yu. F., AMEL'KIN, A. M., Special Design
Office of the Ministry of Geology of the USSR

"A Device for Shaping Square Pulses of Alternating Sign"

USSR Author's Certificate No 265183, filed 8 Jul 68, published 12 Jun 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 126252 P)

Translation: This Author's Certificate introduces a device for shaping square pulses of alternate sign. The unit contains a sinusoidal or back-to-back sawtooth voltage generator connected through a transformer to the bases of transistor cells of the switching type which are connected in series with the power supply and a potentiometer. The unit also contains a load connected to the tie-point between two capacitors which are connected in parallel with the supply and to the slide wire of the potentiometer. To change the duty factor of the output pulses while simultaneously minimizing the klirr factor with respect to even harmonics, a parallel RC network which contains a variable resistor is connected between centertap of the secondary winding of the transformer and the capacitors of the transistor cells.

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2/2 024

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0139425

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. FINELY GROUND POWDERS OF NAPHTHALENE AND OF NH SUB4 NO SUB3 AS WELL AS SINGLE CRYSTALS OF THESE SUBSTANCES WERE COMPRESSED OR HEATED TO FUSION UNDER VERY CAREFULLY CONTROLLED CONDITIONS. THE POROUS PRODUCTS THUS OBTAINED WERE THEN SUBJECTED TO FORCES OF OPPOSITE SIGN. THE FORCE REQUIRED TO BREAK THE CONTACT ESTABLISHED BY EITHER COMPRESSION OR HEAT, DIVIDED BY THE AREA OF THE SPECIMEN GAVE THE STRENGTH OF THE INDIVIDUAL CONTACT. THIS METHOD ENABLED DIRECT MEASUREMENT OF THE COHESIVE FORCES OF INDIVIDUAL CONTACTS FROM THOUSANDTHS OF A DYNE TO SEVERAL HUNDRED DYNES. THE RESULTS ARE PLOTTED ON DISTRIBUTION CURVES. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EVALUATION OF THE STRENGTH OF INDIVIDUAL CONTACTS BETWEEN SMALL
CRYSTALS IN POROUS BODIES -U-
AUTHOR--(04)--SHCHUKIN, YE.D., AMELINA, YE.A., YUSUPOV, R.K., REBINDER, P.A.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKADE. NAUK SSSR 1970, 191(5), 1037-40 (TECH PHYS) (RUSS)
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--COHESION STRENGTH, POROSITY, CRYSTAL SURFACE, NAPHTHALENE,
AMMONIUM NITRATE, THERMAL PROCESS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3003/1496 STEP NO--UR/0020/70/191/005/1037/1040
CIRC ACCESSION NO--AT0130425
UNCLASSIFIED

USSR

UDC: 669.71

AMELINA, Ye. A., PARFENOVA, A. M., SHCHUKIN, Ye. D., Moscow

"Influence of Thin Layers of Diphilic Molecules (Surfactants) on the Formation of Contacts in Porous Dispersed Structures Arising Upon Pressing of Powders"

Moscow, Fizika i Khimiya Obrabotki Materialov [The Physics and Chemistry of Materials Processing], No 6, Nov-Dec 73, pp 118-122.

Abstract: The influence of layers of octadecylamine and cetyl alcohol on the surfaces of dispersed particles on the process of formation of contacts in porous dispersed structures arising upon pressing of NaCl powders is studied. All of the layers studied, regardless of their thickness, prevent contact between NaCl particles due to valent forces, i.e., hinder the formation of phase contacts with NaCl-NaCl contact surfaces, and reduce the strength of the structure produced. The greatest screening effect is achieved at a certain critical particle compression force. The screening effect is independent of layer thickness. The critical particle compression force is a quantitative characteristic of the physical properties of the layers of diphilic molecules on the solid surface.

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USSR

AMELINA, M. A., et al., Plasticheskiye Massy, No 4, Apr 71, pp 5-7

was conducted in parallel to radiation hardening for comparison. It was found that radiation polymerization of oligomeric esteroacrylates produces higher quality products than those obtained by ordinary thermochemical polymerization. Since the radiation doses which are needed in order to obtain radiation hardening of polymers are low the use of this method in certain cases is expedient.

USSR

UDC 678.744.3-139.01:53

AMELINA, M. A., MAKASHOV, G. F., KHOROSHILOVA, I. P., BOCHARNIKOV, V. K.,
and BUBLIK, V. A.

"Radiation Hardening of Oligomeric Esteroacrylates"

Plasticheskiye Massy, No 4, Apr 71, pp 5-7

Abstract: The use of ionizing radiation for polymerization of unsaturated polyesters, conducted at elevated temperatures in the absence of catalysts, enables one to change the rate and the extent of the polymerization process within a broad range, control rigorously the degree of hardness of the obtained products, improve purity, homogeneity, decrease internal stresses of the products and impart to them higher thermal stability and mechanical strength. The purpose of the article was to study the effect of chemical structure of polyesters, particularly oligomeric esteroacrylates on the rate of their radiation polymerization, physical and mechanical properties of radiation hardened products and the magnitude of radiation dose which is necessary to produce materials with optimum physical and mechanical indices. Commercial oligomeric esteroacrylates were investigated: MGF-7, MGF-8, MGF-9 and TMGF-11. A cobalt-60 gamma radiation source was used at room temperature. The dose rate was 180 rad/sec. Thermochemical polymerization
1/2

Industrial

USSR

UDC:662.215.2

AMELINA, I. S., GAYEK, Yu. V., SVIRIDENKO, A. N., Dnepropetrovsk

"Energy Evaluation of the Process of Welding of a Bimetal Using Explosive Energy"

Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 358-363

Abstract: Experimental data are presented to indicate the energy capacity of explosive welding of copper with stainless steel. The experiments were performed using tubular specimens. It is established that the boundary between the steel and copper may be wavy or almost straight, the geometry of the waves depending on the thickness of the copper cladding layer and the radial velocity with which the inner tube expands under the influence of the explosive charge to meet the outer tube. It is noted that the welded boundary is heterogeneous in its structure.

Vacuum Tubes

USSR

UDC 621.385:537.525

AKSENOV, I. I., AMELIN, V. Z., BARANOV, N. G., SLATIN, V. I., SMIRNOV, S. A.

"Construction, Electrical, and Operating Characteristics of Heavy-Current Controlled Discharger"

Elektron. tekhnika. Nauchno-tekhn. sb. Gazorazryadn. pribory (Electronic Technology. Scientific-Technical Collection. Gas-Discharge Devices), 1970, Issue 4(20), pp 67-71 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5A170)

Translation: A discharger is described which is intended for operation in circuits of capacitance storage elements and protective devices, with voltages from several hundred volts to 10 kv. The device can commutate currents in a pulse up to 100 ka and is characterized at the same time by a resource well in excess of $3 \cdot 10^4$ of the discharge. The construction of the discharger and the technology of its production are described and the electrical and operational characteristics presented.

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USSR

AMELIN, V. G., SHARKOVA, L. P., Termonekh. Metody Razrusheniya Gorn. Prood. Ch. 5, Kiev, Nauk. Dumka Press, 1972, pp 43-46.

the breakup of frozen rock is most effective with combined use of an HF field for thawing and mechanical loads for rupture. Results are presented from experiments on the rupture of frozen sands under the combined influence of an HF field at 5-3 MHz and a vibrator of 0.4 kw power oscillating at 1,400 cycles per minute.

2/2

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USSR

AMELIN, V. G., SHARKOVA, L. P.

"Results of Preliminary Studies of Processes of Rupture of Frozen Rock and Coal in HF and SHF Fields"

Termomekh. Metody Razrusheniya Gorn. Porod. Ch. 5 [Thermomechanical Methods of Rock Destruction, Part 5 -- Collection of Works], Kiev, Nauk. Dumka Press, 1972, pp 43-46, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 V757, by B. D. Khristoforov).

Translation: Experiments are described studying the influence of HF and SHF fields on frozen sand and Kuznets Basin coal type K₁₃ and G₆. Rupture of the coal in an SHF field excited by a magnetron with a wavelength of 12.6 cm with a mean radiated power density of 2.5-4 w/cm² was observed following 5 minutes due to thawing related to heating of the surface layers 10-12 cm thick. The coal was thawed by irradiation through an intermediate layer of wood (imitating the walls of a coal car). The thawing depth was 6-7 cm, with the outer surface of the wood heated to 60-70°. The measured coefficients of absorption of SHF for moist coal and wood are similar, 0.05-0.15 cm⁻¹. The power consumption of the process of thawing is 30-40 kw/m². The dielectric permeability and dielectric loss angle tangent of coal are defined as functions of moisture content and temperature. It is noted that
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USSR

AMELIN, A. V., et al, Fizika Tverdogo Tela, September 1970, pp 2528-2534

drew the conclusion that for a number of polymers the activation energy of the mechanical destruction U_0 and the activation energy of the initial stage of the thermal destruction E_1 are equal. It is hypothesized that such a correlation between U_0 and E_1 is caused by the presence in polymers of weak bonds which indicate a significant effect on the mechanical properties of polymers. Eliminating weak bonds from polymers should lead to an increase in the activation energy of the mechanical destruction from $U_0 = E_1$ to $U_0 = E_2$. This, according to the kinetic conception of strength, can serve as one of the means of strengthening polymers.

2/2

Molecular Physics

USSR

AMELIN, A. V., et al (Joffe Physics-Engineering Institute, USSR Academy of Sciences, Leningrad)

"Comparison of Activation Energies in Thermal and Mechanical Destruction of Polymers"

Leningrad, Fizika Tverdogo Tela, September 1970, pp 2528-2534

Abstract: The kinetics of the thermal destruction of polyethylene was studied by a method of mass spectroscopy and by determining the strength as a function of the temperature and time. The existence of two stages in the thermal disintegration of polyethylene was discovered. The first stage is characterized by a relatively low activation energy ($E_1 = 25$ kcal/mole) and is attributed to the presence of weak bonds in the sample. The second stage of the thermal disintegration reflects a break in the primary bonds in polyethylene ($E_2 = 70$ kcal/mole). The activation energy U_0 of the mechanical destruction of polyethylene appeared to be equal to approximately 25 kcal/mole.

On the basis of a comparison of data obtained for polyethylene, as well as similar data obtained earlier for polystyrene and polymethylmethacrylate, the authors

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USSR

UDC 546.65.661.185.223

AMELIN, A. N., and KARYAKIN, Yu. V., Voronezh Technological Institute

"Investigation of the Sorptive Properties of Charcoal Activated With Phosphoric Acid"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 46, No 8, Aug 73, pp 1851-1852

Abstract: Dried charcoal was covered with phosphoric acid, and after 24 hrs was calcined in open crucibles with free air access. The optimal conditions for this treatment are: temperature 475°, concentration of phosphoric acid 25-30 percent, the ratio of solid to liquid phase 1:10. Sorption properties with respect to chlorine and alkali are reported. It is concluded that treatment of activated charcoal with phosphoric acid leads to a formation of carboxyl and phenolic groups on its surface and to some extent also to the phosphatation of the surface.

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USSR

AMEL'CHENKO, V. V., et al, Raschet prostranstv. sistem v stroit. mekh.,
Saratov, Saratov University, 1972, pp 188-192

The temperature over the thickness of the shell was taken to be constant
in the examples. 7 ref. O. I. Terebushko.

2/2

USSR

UDC 624.07:534.1

AMEL'CHENKO, V. V., VOLCHKOVA, A. G., KRY'S'KO, V. A.

"On the Problem of the Thermal Stability of Flexible Orthotropic Shells"

V sb. Raschet prostranstv. sistem v stroit. mekh. (Calculation of Three-Dimensional Systems in Structural Mechanics -- Collection of Works), Saratov, Saratov University, 1972, pp 188-192 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V298)

Translation: A hollow fiberglass shell is considered as a nonhomogeneous orthotropic shell. The change in the elastic moduli is taken into account as a function of temperature, which is considered a known function of three variables. Relationships for thermoelastic forces and deformations are found. A system of nonlinear equations for equilibrium and compatibility of deformations is obtained in the ordinary manner. The nonlinear system is linearized by the consecutive loads method to solve the problem. The resulting linearized system is solved by the Bubnov-Vlasov variation method in high approximations. The calculations were performed on the M-220 computer. The example considered is that of a square isotropic shell hinge-supported on unstretchable ribs that are flexible in the tangential plane.

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2/2 020

UNCLASSIFIED

PROCESSING DATE--16 OCT 70

CIRC ACCESSION NO--AP0106390

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. USING THE METHODS OF T. BOYDE AND A. LATNER (1962) AND OF A. BURGER, ET AL. (1964) ONLY 1 ISOENZYME (CYTOPLASMIC) OF THE TITLE ENZYME WAS DETECTED IN THE BLOOD SERUM OF HEALTHY HUMANS; THIS ISOENZYME HAD AN ELECTROPHORETIC MOBILITY AT PH 8.6 IN AGAR GEL SIMILAR TO THAT OF ALPHA SUB2 GLOBULINS. IN PATIENTS WITH LIGHT BOTKIN'S DISEASE THE ACTIVITY OF THE ISOENZYME WAS HIGHER AND IN SEVERE BOTKIN'S DISEASE ANOTHER ISOENZYME (MITOCHONDRIAL) WITH ELECTROPHORETIC MOBILITY SIMILAR TO THAT OF GAMMA GLOBULINS OCCURRED IN ADDN. FACILITY: VOENNOMED. AKAD, IM. KIROVA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--DETERMINATION OF ASPARTATE AMINOTRANSFERASE ISOENZYMES IN SERUM BY
AN ENZYMIC ELECTROPHORETIC METHOD -U-
AUTHOR-(03)-DENISENKO, L.N., KOROVKIN, B.F., AMDIY, E.M.

COUNTRY OF INFO--USSR

SOURCE--LAB. DELO 1970, (1), 25-7

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEPATITIS, AMINOTRANSFERASE, GAMMA GLOBULIN, ALPHA GLOBULIN,
MITOCHONDRION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1644

STEP NO--UR/9099/70/000/001/0025/0027

CIRC ACCESSION NO--AP0106390

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--3000170
CIRC ACCESSION NO--AP0125465
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CAPACITY OF LEUKOCYTES OF 24
HOUR AND 72 HOUR PERITONEAL EXUDATES AND OF LEUKOCYTES OF THE PERIPHERAL
BLOOD OF RABBITS TO PRODUCE INTERFERON WAS STUDIED. CELLS OF THE
PERITONEAL EXUDATA WERE FOUND TO PRODUCE INTERFERON IN EQUALLY HIGH
TITERS REGARDLESS OF THE PREVALENCE IN IT OF ANY CELLULAR FORMS.
LEUKOCYTES OF THE PERIPHERAL BLOOD PRODUCED LESS INTERFERON THAN THOSE
OF THE EXUDATE. INTERFERON PRODUCTION BY LEUKOCYTES OF THE PERITONEAL
EXUDATE WAS ACCOMPANIED BY ENHANCED INTENSITY OF THEIR REACTION TO RNA,
INCREASED ACTIVITY OF GLUCOSE-6-PHOSPHATE DEHYDROGENASE AND ACTIVATION OF
LYSOSOME APPARATUS. FACILITY: KAFEDRA VIRUSOLOGII TSENTRAL'NOGO
INSTITUTA USOVERSHENSTVOVANIYA VRACHEY, OTDEL VIRUSOLOGII INSTITUTA
EPIDEMIOLOGII I MIKROBIOLOGII IMENI N. F. GUMILEV AMN SSSR, MOSKVA.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--INTERFERON PRODUCTION AND SOME HISTOCHEMICAL CHANGES IN RABBIT
LEUKOCYTES -U-
AUTHOR-(04)-SUROKIN, A.M., MOYSIADI, S.A., AMCHENKOVA, A.M., VORONINA,
F.V.
CCOUNTRY GF INFO--USSR
SOURCE--VOPORSY VIRUSOLOGII, 1970, NR 3, PP 291-295
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--INTERFERON, LEUKOCYTE, DEHYDROGENASE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1854 STEP NO--UR/0402/70/000/003/0291/0295
CIRC ACCESSION NO--AP0125465
UNCLASSIFIED

USSR

UDC 616.381-003.2-092.9-022.6:576.858.095.383

KHESIN, Ya. Ye., VORONINA, F. V., and AMCHENKOVA, A. M., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Moscow

"Cytological Study of the Peritoneal Exudate of Mice in the Course of Interferon Production in Vitro"

Moscow, Voprosy Virusologii, No 5, Sep/Oct 70, pp 544-549

Abstract: Cytological and cytochemical studies were made of cultures obtained from peritoneal exudate of mice which were producing interferon owing to infection with Newcastle disease virus and of control groups. During the production of interferon (1-5 hrs after inoculation with the virus), signs of the activation of RNA synthesis appeared, including increased activity of glucose-6-phosphate dehydrogenase, some oxidative enzymes, and, particularly, acid phosphatase, in cells of the peritoneal exudate. These shifts were not associated with multiplication of the virus in cells. Swelling of lysosomes during interferon production, formation of Homori-positive vacuoles in macrophages, and release of these vacuoles into the culture field suggest that the lysosome apparatus of the cells takes part in the production and release of interferon.

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2/2 035

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0121364

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC CURVES WERE SHOWN FOR CHANGES IN RNA CONTENT OF NORMAL AND SPECIFICALLY RESISTANT LEUKEMIA L69 CELLS AFTER INFECTION WITH HOMOLOGOUS VIRUS. THE RESISTANT CELLS DISPLAY A PECULIAR METABOLISM IN THAT THE INTRACELLULAR DEVELOPMENT OF THE VIRUS IS INTERRUPTED AT AN EARLY STAGE WITHOUT REACHING FULL DEPROTEINIZATION WHILE THE SECONDARY GROWTH OF RNA CONTENT IS NOT ACCOMPANIED BY A RISE OF VIRUS RNA SYNTHETIC ACTIVITY IN THE CYTOPLASM OR CYTOPATHIC CHANGES OF THE CELLS. TREATMENT OF THE INFECTED CELLS BY ACTINOMYCIN FOR 1 HR COMPLETELY INHIBITED NUCLEIC ACID SYNTHESIS SO THAT IN SUBSEQUENT TREATMENT WITH URIDINE PRIME3 H SUBSTANTIALLY NO TAG IS INTRODUCED INTO THE NUCLEI OF THE CELLS. THUS THE PRODUCTION OF MESSENGER RNA FOR THE VIRUS INHIBITOR OF SYNTHESIS OF CELLULAR RNA IS CODED NOT BY THE VIRUS GENOME BUT BY THE CELLULAR GENOME.
FACILITY: INST. EPIDEMIOLOG. MIKROBIOLOG. IM. GAMALEI, MOSCOW, USSR.

UNCLASSIFIED

1/2 035 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CYTOPHOTOMETRIC AND RADIOAUTOGRAPHIC STUDY OF RNA SYNTHESIS IN
CULTURES OF LEUKEMIA CELLS SENSITIVE AND RESISTANT TO COXSACKIE B3 VIRUS
AUTHOR--(05)-KHESIN, YA.E., TKHORZHEVSKIY, V.V., YERMAN, B.A., AMCHENKOVA,
A.M., VORONINA, F.V.
COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1218-21

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LEUKEMIA, COXSACKIE B VIRUS, RNA, BIOSYNTHESIS, TRITIUM,
CHEMICAL LABELLING, AUTORADIOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0705

STEP NO--UR/0020/70/190/005/1218/1221

CIRC ACCESSION NO--AT0121364

UNCLASSIFIED

USSR

SOVETOVA, G. P., et al., Voprosy Virusologii, No 1, Jan/Feb 71, pp 10-16

antiserum, and for the remaining observation period (22-48 passages), the cell cultures did not degenerate. The respective viruses were detected in all cell strains. Cytophysiological, morphological, and cytochemical studies were performed, the content of acid-soluble proteins in the various cell cultures, and succinate dehydrogenase activity in the culture cells were determined. During the entire observation period, chronic infection never became acute even when no antiserum was in the culture medium. The cultures were highly resistant to superinfection and differed from normal cultures by a considerably reduced content of acid-soluble proteins and by their cytomorphological and histochemical properties.

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USSR

UDC 576.858.23(Coxsackie)+576.858.17.083.35

SOVETOVA, G. P., MARCHENKO, B. I., AMCHENKOVA, A. M., BALANDIN, I. G., and LUSHNIKOV, A. A., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, USSR Academy of Medical Sciences, Moscow

"Chronic Virus Infection in Transplanted Cultures of Human Leukemia Cells (J-96) and Mouse Fibroblasts (L) Produced by Inoculation of Cultures with Coxsackie B₅ and Vesicular Stomatitis Viruses in the Presence of Antisera to the Infected Cell"

Moscow, Voprosy Virusologii, No 1, Jan/Feb 71, pp 10-16

Abstract: In order to evaluate the significance of antiviral antibodies in the development of chronic infection, it is necessary to study them in combination with other immunological factors under natural conditions. Consequently a serum against the infected cells was used to produce chronic infection in a tissue culture. J-96 cell cultures were inoculated with Coxsackie B₅ virus and L cells with vesicular stomatitis virus, and then cultured in the presence of antisera against the infected cells. In 7 of 14 tests with J-96 cultures and in 3 of 4 tests with L cultures, cell strains with properties differing sharply from the original ones were obtained. Starting with the 9th passage, when the cultures were no longer treated with the

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USSR

UDC 576.858.23.083.35:576.8.095.383.098.396

KHESIN, Ya. Ye., AMCHENKOVA, A. M., and KOZ'YAKOV, S. Ya., Laboratory of Cytopathology, Division of Virology, Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Moscow

"The Content of Basic Proteins in Reticular Cells of Transplantable Lines Sensitive and Resistant to Enteroviruses"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 72, No 11, Nov 71, pp 116-118

Abstract: The content of basic proteins in cultures of M. rhesus reticular cells sensitive and specifically resistant to polio virus (MIO and MIO-45, respectively) was subjected to comparative study by histochemical and cytophotometric methods. It was established that the content of basic proteins in the cytoplasm and to a still greater extent in the nuclei was higher for the resistant MIO-45 than the sensitive MIO cells. It had been shown earlier that immunity of resistant reticular cells to a virus is associated with cellular inhibition of the synthesis of definite substances required for the adsorption and deproteinization of the virus. This change in the metabolism of the cells, which results in what may be called metabolic immunity, is presumably due to the action of basic proteins of the histone type.

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USSR

UDC 616.155.3-008.13:576.858.13.095.083

BOCHAROV, A. F., MOYSIADI, S. A., AMCHENKOVA, A. M., VORONINA, F. V., and KHESIN, YA. YE., Chair of Virology, Central Institute of Advanced Training of Physicians, Ministry of Health USSR, and Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Moscow

"The Effect of Immunological Reactivity of Rabbit Leukocytes and Macrophages on Interferon Production in the Presence of Herpes Virus"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 71, pp 725-731

Abstract: Upon contact with herpes virus in vitro, interferon is produced in small amounts by leukocytes obtained from the peripheral blood of control rabbits, in larger amounts of leukocytes and macrophages obtained from the peritoneal exudate of control rabbits, and in the largest amounts and at the fastest rate by peritoneal leukocytes and macrophages of perviously immunized rabbits. After vaccination, white blood cells mobilized in the peritoneal exudate have a faster metabolic rate, including a higher activity of oxidative and hydrolytic enzymes and a greater RNA concentration, than in the control state, and they also absorb the antigen more readily. Evidence indicates that these factors are responsible for the augmented production of interferon.

Acc. Nr:

AP0053889

Abstracting Service:
CHEMICAL ABST. 6-70

Ref. Code:

UR0018

117297e Thermal stability of cerium and praseodymium valerates. Lazareva, L. S.; Ambrozhi, M. N.; Dvornikova, L. M. (Saratov. Gos. Univ., Saratov, USSR). *Zh. Neorg. Khim.* 1970, 15(2), 354-7 (Russ). NH_4 valerate (NH_4L) was added slowly to 10% soln. of Ln (Ln = Ce or Pr) nitrate and the ppt. was washed and recrystd. to give $\text{LnL}_3 \cdot \text{H}_2\text{O}$. DTA indicated that the compds. lost H_2O at 80-120°. $\text{CeL}_3 \cdot \text{H}_2\text{O}$ decompd. >240°, giving CeO_2 at 420° as the final product. Thermal decompn. of $\text{PrL}_3 \cdot \text{H}_2\text{O}$ proceeded by formation of Pr_2OL_4 , $2\text{PrO}_2 \cdot 3\text{Pr}_2\text{O}_3 \cdot \text{PrOL} \cdot 5\text{O}_2$ and finally by the formation of Pr_6O_{11} at 580°. Thermal decompn. of $\text{PrL}_3 \cdot \text{H}_2\text{O}$ in N atm. has an endothermic effect at 420° which was not present in normal atm. Activation energies of decompn. of $\text{LnL}_3 \cdot \text{H}_2\text{O}$ and their decompn. products are tabulated.

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 REEL/FRAME
 19830966
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UNCLASSIFIED PROCESSING DATE--24 JUL 70
TITLE--THERMAL STABILITY OF CERIUM AND PRASEODYMIUM VALERATES -U-
AUTHOR--LAZAREVA, L.S., AMBROZHIY, M.N., DVORNIKOVA, L.M. 23
COUNTRY OF INFO--USSR 27
SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 354-7
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL STABILITY, CERIUM COMPOUND, PRASEODYMIUM COMPOUND,
VALERIUM COMPOUND, THERMAL DECOMPOSITION, ACTIVATION ENERGY, ENDOTHERMIC
EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1983/C966 STEP NO--UR/0078/70/015/002/0354/0357

CIRC ACCESSION NO--AP0053889
UNCLASSIFIED

USSR

AMBROSOV, V. A., et al, Prikladnaya Biokhimiya i Mikrobiologiya, Vol. 6, No. 4, Jul/Aug 70, pp 363-374

X requires $(n - 1)$ "units" of substrate M to form n new cells. Methods of determining the parameters of the model are discussed, and the results of experiments with Candida intermedia, Brevibacterium sp. 22, and Saccharomyces cerevisiae to test the adequacy of the model are summarized.

2/2

- 10 -

USSR

UDC 576.809.30

AMEROSOV, V. A., VASIL'YEV, N. N., and SKLADNEV, A. A., Moscow Technological Institute of the Food Industry

"Mathematical Model of the Reproduction of Microorganisms Under Conditions of Periodic Cultivation"

Moscow, Prikladnaya Biokhimiya i Mikrobiologiya, Vol 6, No 4, Jul/Aug 70, pp 363-374

Abstract: On the basis of an analysis of the role of thermodynamic factors in the kinetics of reproduction of prototypes, N. I. Kobozov proposed a model of a reversible autocatalytic process in 1962. In the present study, several aspects of this model are analyzed and defined concretely as applied to the growth of microbial populations. The mechanism of microbial reproduction in a dynamic cell-medium system under conditions of periodic cultivation is reflected in the model by the function $(n-1)M \xrightarrow[k_2]{k_1} nX$,

where n is the number of "cellular units" in substrate M and cells X ; k_1 is the constant of the rate of formation of the biomass, characterizing the specific rate of synthesis in the cells; and k_2 is the constant of the rate of dying off characterizing the rate of disintegration of the cells. In other words, microbial cell

1/2

AMBROSOV, V. A.

50:JAS 55204

16 FEB 72

RDC: 311.2(649.3)

NEW BOOK DEALS WITH RAPID STATISTICAL PROCESSING AND PLANNING OF EXPERIMENTS

[Book review by I.V. Polyakov, Candidate of Medical Sciences (Leningrad);
Moscow, Sovetskoye Zdravoohraneniye, Russian, No 1, 1972, pp. 76-77]

This book by I.P. Ambrosov, N.A. Gerasimov, and V.A. Ambrosov is small in size but considerable in content, and is intended for a wide circle of biologists, microbiologists, and biologists in other specialties, and has as its purpose to acquaint the readers with express methods of statistical data processing. It also deals with mathematical planning of experiments, which is still a little developed but very important area of scientific experimentation in biology and medicine.

The book consists of three sections. The first presents in concise form practical procedures for rapid statistical processing of experimental data. The reader learns about the methods of processing variation series of fractions, choice of type of mean values and the technique for calculating the most complex mean, the geometric mean, as well as the rapid method of testing for the presence in a set of "believed" variants by calculating ratios, where the numerical indicators the difference between the "suspected" cluster extreme variant and the variant that precedes it, and the denominator indicates the difference between the largest and smallest variants in the set.

The authors make an interesting remark to the effect that "with more than four variants it is often possible to work with the median as the average characteristic of sets theoretically subject to processing using the geometric mean" (p. 10). However, the authors do not decide these not unknown instances, which is a regrettable omission. They recommend an express method to evaluate variation of data and confidence interval boundaries when there is a small number of observations, on the basis of determining the spread of variations using a special coefficient, K , already computed by the authors for a reliability level of 95 and 99 percent, which

Abstract by N. S. Stetschenko, Ubraborki i planirovaniye ispytaniy
(Rapid methods for statistical processing and planning of experiments),
Leningrad University Publishing House, 1971, 80 pp., by I.P. Ambrosov,
N.N. Vasil'yev, V.A. Ambrosov.

USSR

UDC 635.21+632.3

AMBROSAW, A. L., and BLOTSKAYA, Zh. V.

"Results of Study of the Resistance of Various Potato Strains to Y Virus"

Minsk, Izvestiya Akademii Nauk BSSR, No 4, 1971, pp 43-45

Translation: The resistance of various potato strains to spontaneous or experimental infection with Y virus was investigated and results were analyzed.

The Minskiy ranniy, Belorusskiy krakhmalistyy, Agronomicheskii, and Temp strains are most susceptible to this virus: 60-80% of these potatoes were diseased according to serodiagnosis, and 10-30% according to external manifestations. The Loshitskiy, Kandidat, Pavlinka, Ogonek, Lavonikha, and Akkord strains are most resistant to Y virus: 10-40% of the specimens were diseased according to serodiagnosis. These strains have no external manifestations of the disease, that is, they are latent carriers of Y virus.

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USSR

UDC 635.21:635.28

AMBROSAV, A. L., and MATYUSHENKA, L. A.,

"The Effect of Nutrition Conditions on Virus Diseases of Potatoes and Productive Qualities of Potato Tubers"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Sel'skokhozyaystvennykh Nauk, No 1, 1971, pp 57-60

Abstract: Experimental data are presented of a three-year study of potato yield and potato virus diseases in relation to nutrients in different soils and the kind of fertilizers used. The best combination of nutrients for potato sets is 3 tons manure/ha plus N-45, P-60, K-60 kg/ha for mineral soils; and P-60, K-120 kg/ha for peat-bog soils. However, if potatoes are already infected with a virus, the growing conditions on peat-bog and mineral soils in the presence of the above doses of fertilizers facilitate the spread of disease.

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USSR

UDC 536.52.001.4

VILEYSHIS, A. I., AMBRAZYAVICHYUS, A. B.

"Trichromatic Automatic Pyrometer Measuring of the Temperatures of Various Ceramics"

V sb. Mechanika, Mekhanika (Mechanics--collection of Works), Vil'nyus, 1970, pp 380-384 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 8, Aug 70, Abstract No 8.32.624)

Translation: Experimental measuring of the temperature of various ceramics with the help of trichromatic pyrometer, designed by the Institute of Physicotechnical Problems of Power Engineering of the Academy of Sciences of the Lithuanian SSR, is presented. The trichromatic, two dichromatic and the actual temperatures of the studied specimens are measured. It is established experimentally that the use of trichromatic pyrometer for measuring temperatures of various ceramics allows to reduce errors of dichromatic pyrometers resulting from selective radiation of ceramics in the used spectrum region. 2 ill., 3 bibl. entries.

V. S. K.

1/1

Heat, Combustion, Detonation

USSR

UDC: 536.24:532.54

AMBRAZYAVICHYUS, A. B., ZHUKAUSKAS, A. A., VALATKYAVICHYUS, P. Yu.

"Investigation of the Influence of the Temperature Factor on Heat Exchange During Turbulent Flow of a Gas in a Tube"

V sb. Teplo- i massopereenos (Heat- and Mass-Transfer--collection of works), T. 1, Minsk, 1972, pp 121-127 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7B783)

Translation: An investigation is made experimentally into turbulent heat exchange in a tube 21.3 mm in diameter over a broad range of temperatures and flow velocities: $18 \leq l/d \leq 44$, $500 < T_j < 4700$ K, $1.5 < T_j/T_0 \leq 12$, $5 \cdot 10^3 \leq k_j \leq 10^5$. The experiments were done in flows of air or nitrogen on a specially developed experimental installation with 300 kW electric arc heating.

USSR

AMBRAZEVICH, V. L., V sb. 26 Nauchno-tekhn. konferentsiya. Belorussk. politekhn. in-t Materialy Sekts. teor. i prikl. mekhaniki, Minsk, 1970, pp 63-73

derived. The solution to each of the systems is reduced to solving six differential equations with respect to six displacement functions, with the boundary conditions satisfied. The corresponding boundary conditions are presented for each system. The following problems are also solved: bending of an infinitely broad plate loaded with normal, uniformly distributed load applied by halves to the upper and lower faces of the plate, for plate margins hingewise secured and rigidly clamped, and for bending of a transversally-isotropic orthogonal plate resting hingewise along all four sides and subjected to a distributed load that varies cosinusoidally. Comparison of the author's results with known results is given for these problems listed above.

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USSR

UDC 539.3

AMBRAZEVICH, V. L.**"Problem of Calculating Anisotropic Plates"**

V sb. 26 Nauchno-tekhn. konferentsiya. Belorussk. politekhn. in-t Materialy Sekts. teor. i prikl. mekhaniki (26th Scientific-Technical Conference, Belorussian Polytechnic Institute, Materials of the Theoretical and Applied Mechanics Section -- collection of works), Minsk, 1970, pp 63-73 (from RZh-Mekhanika, No 12, Dec 70, Abstract No 12V176, by V. S. Khar'kov)

Translation: Several problems in the calculation of anisotropic plates are examined, based on a revised theory that differs in the method of forming the deformation hypothesis satisfying conditions at the faces and that differs in the possibility of constructing further approximations for a decrease in closure in the equilibrium equations and in the equations of the boundary state at the cylindrical surface. Displacements are given as a finite series (of four members) in terms of Legendre polynomials. The transition from three-dimensional differential equations of elasticity theory to two-dimensional is achieved by using the equilibrium equation isolated from the column plate. An investigation is made of the case of anisotropy when the plate material has only one plane of symmetry, parallel to the median plane of the plate. Two systems of equations in terms of the unknown displacement functions are

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USSR

UDC 542.91+547.466+547.964.4

AGDZHANYAN, T. YE., AMBOYAN, L. K., Institute of Fine Organic Chemistry imeni
A. L. Mndzhoyan, Academy of Sciences of the ArmSSR, Yerevan

"Biologically Active Polymers. II. bis-(2-Chloroethyl)amides and N,N-bis-
(2-Chloroethyl)hydrazides of Polypeptides"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 26, No 2, 1973, pp 135-140

Abstract: Polypeptides of various α -amino acids containing bis-(2-chloroethyl)amine or N,N-bis-(2-chloroethyl)hydrazine radicals on the C-end were synthesized to investigate their tumor-controlling properties. The polypeptide derivatives were synthesized by polymerizing the N-carboxyanhydrides of the corresponding amino acids in the presence of these amines. Polymerization of N-carboxyanhydrides of sarcosine, DL-alanine and L- and D-valine in the presence of bis-(2-chloroethylamine) is accompanied by amide-ester regrouping. A previously unreported hydrazide-ester rearrangement was observed when N-carboxyanhydrides of sarcosine and DL-alanine were polymerized in the presence of N,N-bis(2-chloroethyl)hydrazine.

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UDC 542.91+547.466+547.964.4

AGADZHANYAN, Ts. Ye., AMBOYAN, K. L., GARIBDZHANYAN, B. T., and CHACHOYAN, A. A., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyan, Acad. Sc. Armenian SSR, (Yerevan)

"Biologically Active Polymers. I. Synthesis of Polypeptides Containing Cytotoxic Groups"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 11, 1972, pp 956-962

Abstract: Polypeptides of glycine, sarcosine, DL-norleucine, DL-leucine, L-phenylalanine, L- and D-valine were synthesized, connected to the ethylenimine, N,N-bis-(2-chloroethyl)-p-phenylenediamine or to the ethyl ester of sarcosine by an amide linkage. Derivatives of polypeptides were obtained in anhydrous dioxane by polymerization of N-carboxy anhydrides of the corresponding aminoacids in presence of the above mentioned amines. The structure of the polymers has been confirmed by means of infrared and ultraviolet spectra. It was shown that some of the products exhibited antitumor activity on Walker carcinosarcoma and Ehrlich ascitis tumor.

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PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123631

ABSTRACT/EXTRACT--HEATING ARYL ISOCYANATES WITH CYANOHYDRINS IN PHNE AT 90DEGREES GIVES MAINLY N,N',DIARYLUREAS AND NOT ALPHA CYANOALKYL PHENYL CARBAMATES AS STATED BY K. D. SHVEITSOVA=SHILOVSKAYA, N. N. MEL'NIKOV, Z. I. MAKSIMOVA, T. S. ZAKHAROVA, AND L. P. BOCHAROVA (1962).

THE IR SPECTRA WERE DISCUSSED.

FACILITY: ARM. SCL'SKOKHOZ.

INST., EREVAN, USSR.

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123681

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF ARYL ISOCYANATES WITH CYANOHYDRINS OF ALDEHYDES AND KETONES IN THE PRESENCE OF PYRIDINE (I) GIVES ALPHA CYANOALKYL ARYL CARBAMATES. TO A STIRRED MIXT. OF 2.38 G PHNCO AND 1.25 G GLYCOLNITRILE (II), 0.025 G I WAS ADDED TO GIVE 75PERCENT PHNHCN SUB2 CH SUB2 CN, M. 82-30DEGREES. SIMILARLY PREPD. WERE THE FOLLOWING (PRODUCT, PERCENT, YIELD, AND M.P. GIVEN): P-CLC SUB6 H SUB4 NHCO SUB2 CH SUB2 CN, 90.4, 98-100DEGREES (PHME); PHNHCN SUB2 CH(CN)ME, 99, 77-30DEGREES (C SUB6 H SUB18); -CLC SUB6 H SUB4 NHCO SUB2 CH(CN)ME, 90.5, 92-40DEGREES (C SUB6 H SUB18). A MIXT. OF 2.38 G PHNCO, 1.9 G ME SUB2 C(OH)CN (III), AND 0.025 G I WAS KEPT AT ROOM TEMP. 3-4 DAYS TO GIVE 92PERCENT PHNHCN SUB2 C(CN)ME SUB2, M. 136-70DEGREES (FROM PHME). SIMILARLY PREPD. WAS 70.6PERCENT P-CLC SUB6 H SUB4 NHCO SUB2 C(CN)ME SUB2, M. 117-19DEGREES. A MIXT. OF 3 G M-CLC SUB6 H SUB4 NCO, 1.25 G II, AND 0.025 G I WAS LEFT OVERNIGHT AT ROOM TEMP., 7-8 ML C SUB6 H SUB6 WAS ADDED, AND THE MIXT. HEATED TO 80-90DEGREES FOR 3-4 HR TO GIVE 80.9PERCENT M-CLC SUB6 H SUB4 NHCO SUB2 CH SUB2 CN, M. 112-130DEGREES. THE WORK OF I. G. KHASKIN AND V. I. KONDRATENKO (1966) WAS REPEATED; AND THE PRODUCTS ARE OXAZOLINE AND OXAZOLIDINE DERIVS. RATHER THAN ALPHA CYANOPROPYL ESTERS OF CHLOROFORMIC AND PHENYL CARBAMIC ACIDS. THUS, COCL SUB2 WITH III GAVE 2,OXO,4,CHLORO,5,5,DIMETHYL,3,OXAZOLINE (IV), M. 70-20DEGREES, WHICH ON HYDROLYSIS GAVE 2,4,DIOXO,5,5,DIMETHYLOXAZOLIDINE, M. 75-60DEGREES. THE REACTION OF IV WITH PHNH SUB2 AFFORDED 2,OXO,4,ANILINO,5,5,DIMETHYL,3,OXAZOLINE, M. 262-40DEGREES.

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1/3 015 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SYNTHESIS OF PESTICIDES. XXVI. SYNTHESIS OF ALPHA CYANOALKYL
ARYLCARBAMATES -U-
AUTHOR-(02)-JOVLATYAN, V.V., AMBARTSUMYAN, YE.N. A
COUNTRY OF INFO--USSR
SOURCE--ARM. KHIM. ZH. 1970, 23(1), 49-53
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CHEMICAL SYNTHESIS, CARBAMATE, PESTICIDE, UREA DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1979/1893 STEP NO--UR/0426/70/023/001/0049/0053
CIRC ACCESSION NO--AP0123681
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--3000170

CIRC ACCESSION NO--AP0125117

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OUTLINE OF CURRENT TRENDS IN ASTRONOMY WITH SPECIAL ATTENTION TO THEORIES CONCERNING THE INSTABILITY OF COSMOGONIC PHENOMENA. THE RED SHIFT, THE THEORY OF AN EXPANDING UNIVERSE, THE EXPLOSIVE PROCESSES IN GALACTIC NUCLEI, AND QUASISTELLAR SOURCES OF RADIATION ARE DISCUSSED AS THE MAJOR SCIENTIFIC BREAKTHROUGHS REVOLUTIONIZING MODERN ASTRONOMY. FACILITY: AKADEMIIA NAUK SSR, INSTITUT FILOSOFII, MOSCOW, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--REVOLUTION IN CONTEMPORARY ASTRONOMY -U-
AUTHOR-(02)-AMBARTSUMYAN, V.A., KAZIUTINSKIY, V.V.
COUNTRY OF INFO--USSR A
SOURCE--PRIRODA, NO. 4, 1970, P. 16-26
DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS
TOPIC TAGS--ASTRONOMY, COSMOGONY, GALAXY, NUCLEUS, EXPLOSION, ASTROPHYSICS

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PRUXY REEL/FRAE--2000/1489 STEP NO--UR/0026/70/000/004/0016/0026
CIRC ACCESSION NO--AP0125117
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0125379
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STATISTICAL STUDY OF FLARES FROM A
SELECTED GROUP OF RW AUR TYPE VARIABLE STARS, SHOWING THAT ONLY A
QUARTER OF THE STARS WITH VARIABILITY AMPLITUDES GREATER THAN ONE
STELLAR MAGNITUDE ARE FLARE STARS WITH PHOTOGRAPHICALLY OBSERVABLE
FLARES. ARGUMENTS ARE GIVEN IN FAVOR OF A HYPOTHESIS THAT SUCH FLARES
OCCUR ONLY AT A VERY LATE STAGE OF VARIABILITY. FACILITY:
BIURAKANSKAIA ASTROFIZICHESKAIA OBSERVATORIIA, YEREVAN, ARMENIAN SSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--PERCENTAGE OF FLARE STARS AMONG RW AUR TYPE VARIABLES IN THE ORION
ASSOCIATION -U-
AUTHOR--AMBARTSUMIAN, V.A. A
COUNTRY OF INFO--USSR
SOURCE--ASTROFIZIKA, VOL. 6, FEB. 1970, P. 31-38
DATE PUBLISHED----FEB70
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS
TOPIC TAGS--FLARE, STAR, VARIABLE STAR, STELLAR MAGNITUDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1763 STEP NO--UR/0388/70/006/000/0031/0038
CIRC ACCESSION NO--AP0125379
UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70
 CIRC ACCESSION NO--AP0125386
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OBSERVATIONAL DATA FOR 46 NEW
 FLARE STARS DISCOVERED IN THE PLEIADES DURING 1968 AND 1969 AT THE
 TONANTZINTLA, ASIAGO, BIURAKAN, BUDAPEST, AND ALMA ATA OBSERVATORIES. A
 STATISTICAL STUDY OF FLARE STARS SHOWS THAT THEIR OVERALL NUMBER IN THE
 PLEIADES SHOULD EXCEED 600. THE DISTRIBUTION OF FLARE STARS ACCORDING
 TO THE NUMBER OF OBSERVED FLARES IS WELL REPRESENTED BY THE SUM OF TWO
 POISSON DISTRIBUTIONS WITH DIFFERENT MEAN FREQUENCIES. ALL, OR ALMOST
 ALL, OF THE MEMBERS IN PLEIADES WITH VISUAL MAGNITUDES LESS THAN 13.3
 ARE FLARE STARS. AT A VALUE OF 13.29, THERE IS A SHARP BORDER BETWEEN
 PHOTOGRAPHICALLY OBSERVABLE FLARE STARS AND NONFLARING STARS. THE MEAN
 FREQUENCY OF LARGE FLARES (AMPLITUDE GREATER THAN 0.6 MAGNITUDE) WAS
 .0001 PER HR FOR MOST STARS. FACILITY: BIURAKANSKAIA
 ASTROFIZICHESKAIA OBSERVATORIIA, YEREVAN, ARMENIAN SSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--FLARE STARS IN THE PLEIADES -U-
AUTHOR-(05)-AMBARTSUMIAN, V.A., MIRZOIAN, L.V., PARSAMIAN, E.S.,
CHAVUSHIAN, D.S., YERASTOVA, L.K.
COUNTRY OF INFO--USSR A
SOURCE--ASTROFIZIKA, VOL. 6, FEB. 1970, P. 7-30
DATE PUBLISHED----FEB70
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS
TOPIC TAGS--STAR, ASTRONOMIC OBSERVATORY, FLARE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2900/1770 STEP NO--UR/0338/79/005/000/0007/0030
CIRC ACCESSION NO--AP0125386
UNCLASSIFIED

AN0051338

the radio range. Appropriate observations were made by Tovmasyan using the two largest Australian radiotelescopes. More than half the objects which he investigated have nonthermal radio emission emanating from the central region near the nucleus. Data on the color indices of stars have been determined for a small number of galaxies. Until recently the accumulation of such data proceeded very slowly. Each galaxy was observed separately with a slit spectrograph or a photoelectric photometer, which required many hours of work with very large telescopes. The situation changed when the Leningrad Optical-Mechanical Combine constructed large prisms for the great telescope at the Byurakan Observatory. These prisms made it possible to obtain simultaneous spectra of a large number of stars and galaxies over a considerable sector of the sky. It has been possible to sort out those galaxies having an ultraviolet spectrum -- Markaryan galaxies. Z. Khachikyan, in collaboration with American astronomers, has studied many Markaryan galaxies using slit spectrographs on the largest telescopes in the United States. It was found that all these galaxies, with rare exceptions, have bright emission lines. In particular, Khachikyan succeeded in detecting four objects of the Markaryan type among Seyfert galaxies. About half the Markaryan galaxies have the property that both emission of the UV spectrum and radiation in the emission lines are concentrated in a small region near the nucleus. About half the Markaryan galaxies are compact formations resembling quasars. However, the luminosity of most of these objects is far less than the mean luminosity of known quasars.

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Acc. Nr.: AN0051338Ref. Code: UR 90/2
JPRS 52054Notes on Soviet Astrophysical Research

(Summary: "Mysterious World of the Galaxies," by V. Ambartsumyan, Director, Byurakan Astrophysical Observatory; Moscow, Pravda, 1 February 1970, p. 3)
the Byurakan Astrophysical Observatory, headed by Academician V. A. Ambartsumyan, has achieved many successes, some of which are reviewed in this article.

Over the years the idea developed that as a result of tremendous explosions the nuclei of galaxies can eject compact objects of a blue color of relatively low luminosity. It later became clear that the activity of nuclei assumes at least three forms. The first is the escape of streams of gases, the second is the ejection of blue condensations and the third is explosions leading to the transformation of a galaxy into a radiogalaxy. B. Ye. Markaryan, Corresponding Member of the Academy of Sciences Armenian SSR, has worked extensively in this field. There is a close dependence between the color of a galaxy and its type. Markaryan found that this dependence is sometimes impaired. Sometimes galaxies have a color not characteristic of their type. It became obvious that they have some additional radiation which at Byurakan is called "nonstellar" or "nonthermal." An attempt was made to find this nonthermal radiation in

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USSR

AMBARTSUMYAN, V. A.

"The Periods of Free Nonlinear Oscillations of Buildings with Frames"

Yerevan, Izvestiya Akad. Nauk ArmSSR, Ser. Tekhn. Nauk, No. 1, 1971, p. 16-22.

Abstract: Precise design of frame buildings for seismic loadings, depends to a significant extent on proper determination of dynamic characteristics of the seismic forces, in particular on the frequency (period) of free oscillations. Determination of the frequencies of free oscillations of frame buildings involves cumbersome calculations of the natural values of quadratic matrices and solution of systems of high order algebraic equations. An earlier work produced a compact formula for determination of the oscillating periods of frame buildings as a function of the number of stories with elastic linear oscillations. This work determines a similar dependence considering the nonlinearity of the oscillations.

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Acc. Nr.: AP0050232

Ref. Code: US0000

PRIMARY SOURCE: FEIS, Daily Report, Soviet Union, 15 April 1970, Vol. III,
No. 73, p. d 11

USSR

BYURAKAN ASTRONOMICAL PLENUM--A plenum of the Astronomical Council of the USSR Academy of Sciences was held recently at Byurakan in honor of the Lenin centennial. The plenum heard a report by the Council Presidium on the activities of Soviet astronomical scientific research institutes in 1969, as well as on foreign scientific relations maintained by Soviet scientists. The plenum also heard a paper on Leninist ideas on the development of physics and modern visions of space by Academician Viktor Ambartsumyan and a report on Byurakan observatory research on the study of blazing stars by Academician Kydvyj Nurzitab, (Yerevan Armenian Middle East 1900 GMT 10 Apr 70 M)

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the radio range. Appropriate observations were made by Tovmasyan using the two largest Australian radiotelescopes. More than half the objects which he investigated have nonthermal radio emission emanating from the central region near the nucleus. Data on the color indices of stars have been determined for a small number of galaxies. Until recently the accumulation of such data proceeded very slowly. Each galaxy was observed separately with a slit spectrograph or a photoelectric photometer, which required many hours of work with very large telescopes. The situation changed when the Leningrad Optical-Mechanical Combine constructed large prisms for the great telescope at the Byurakan Observatory. These prisms made it possible to obtain simultaneous spectra of a large number of stars and galaxies over a considerable sector of the sky. It has been possible to sort out those galaxies having an ultraviolet spectrum -- Markaryan galaxies. Z. Khachikyan, in collaboration with American astronomers, has studied many Markaryan galaxies using slit spectrographs on the largest telescopes in the United States. It was found that all these galaxies, with rare exceptions, have bright emission lines. In particular, Khachikyan succeeded in detecting four objects of the Markaryan type among Seyfert galaxies. About half the Markaryan galaxies have the property that both emission of the UV spectrum and radiation in the emission lines are concentrated in a small region near the nucleus. About half the Markaryan galaxies are compact formations resembling quasars. However, the luminosity of most of these objects is far less than the mean luminosity of known quasars.

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Acc. Nr.: AN0051338Ref. Code: UR 9012
JPRS 50054Notes on Soviet Astrophysical Research

(Summary: "Mysterious World of the Galaxies," by V. Ambartsumyan, Director, Byurakan Astrophysical Observatory; Moscow, Pravda, 1 February 1970, p. 3)
the Byurakan Astrophysical Observatory, headed by Academician V. A. Ambartsumyan, has achieved many successes, some of which are reviewed in this article.

Over the years the idea developed that as a result of tremendous explosions the nuclei of galaxies can eject compact objects of a blue color of relatively low luminosity. It later became clear that the activity of nuclei assumes at least three forms. The first is the escape of streams of gases, the second is the ejection of blue condensations and the third is explosions leading to the transformation of a galaxy into a radiogalaxy. B. Ye. Markaryan, Corresponding Member of the Academy of Sciences Armenian SSR, has worked extensively in this field. There is a close dependence between the color of a galaxy and its type. Markaryan found that this dependence is sometimes impaired. Sometimes galaxies have a color not characteristic of their type. It became obvious that they have some additional radiation which at Byurakan is called "nonstellar" or "nonthermal." An attempt was made to find this nonthermal radiation in

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USSR

MARTIROSOV, S. M., and AMBARTSUMYAN, T. G., Yerevan Physical Faculty

"Cellular Electrogenesis During Active Cation Transport"

Moscow, Biofizika, Vol 18, No 5, Sep/Oct 73, pp 845-849

Abstract: Equations were derived for membrane potentials based on the classical hypothesis that Na and K transport involves special carriers, and that one transport cycle involves hydrolysis of one ATP molecule and transfer of 3 Na ions and 2 K ions. Artificially decreasing membrane permeability to K ions by the addition of cocaine, or replacement of K by rubidium or cesium ions for which the membranes show inferior permeability, leads to even greater hyperpolarization in electrogenically active cation transport. The data were interpreted as suggesting that passive movement of ions across membranes is of great importance in electrogenesis related to the sodium pump.

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UDC: None

AMBARTSUMYAN, B. A., Yerevan

"A Model of an Inherently Elastic Body Differing in Resistance to Stretching and Compression"

Moscow, Prikladnaya matematika i mekhanika, 1971, vol. 35, No. 1, pp 49-60

Abstract: This is the fifth in a series of articles devoted to the difference in resistance to stretching and compression of inherently elastic bodies, written by the same author and published in various journals. The present paper develops a theory for this phenomenon in which the following factors are considered: the instantaneous elastic modulus, the instantaneous Poisson coefficient, the coefficient of inherent deformation, and the coefficient of inherent transverse deformation. The assumption is made that in simultaneous pure stretching and compression in various mutually orthogonal directions, the characteristics of the body in unidimensional stretching or compression remain the same. It is also assumed that the body undergoes only slight deformations for any stress, and is subject to the general laws of any solid, inherently elastic medium.

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AMRATSUMNYAN, S.A., et al, Prikladnaya Matematika i Mekhanika, No 3, March-April 1971, pp 216-228.

problem becomes very difficult, since in this case the internal problem cannot be divided and a precise determination of the magnetic field of the plate in a three-dimensional formulation is not possible. 6 bibliographic entries.

USSR

AMBARTSUMYAN, S.A., BAGDASARYAN, G.YE., BELUBEKYAN, M.V. (Yerevan)

"Concerning the Three-Dimensional Problem of Magnetoelastic Oscillations of a Plate"

Moscow, Prikladnaya Matematika i Mekhanika, No 2, March-April 1971, pp 216-228.

Abstract: The problem of investigation of the magnetoelastic oscillations of an electrically conductive plate in a magnetic field is reduced to the simultaneous solution of the equations of magnetic elasticity in a region occupied by the plate (internal problem), and the equations of electrodynamics for the entire remaining region of the space under consideration (external problem). An attempt is made to determine the magnetic field of a thin plate of finite conductivity, by means of asymptotic integration of the simultaneous equations of magnetoelasticity for the region occupied by the plate. Simultaneously considering the internal problem and the external problem, an investigation is made of the magnetoelastic oscillations of a thin plate of finite conductivity. Some hypotheses of magnetoelasticity are formulated for a plate of finite conductivity. In special cases, when the material of the plate is ideally conductive or when an infinitely extending thin plate has finite electric conductivity, the problem of magnetoelastic oscillations is solved relatively simple. In the general case, when the plate may have finite dimensions while its material is finitely conductive, the solution of this

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USSR

AMBARTSUMYAN, R. V., LETOKHOV, V. S., MAKAROV, G. N., PUKETSKIY, A. A.,
Institute of Spectroscopy, Academy of Sciences of the USSR

"Laser Separation of Nitrogen Isotopes"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 17,
No 2, 20 Jan 73, pp 91-94

Abstract: A report is given on the first highly effective separation of isotopes by the method of selective, two-stage photodissociation of molecules. In the described experiments, nitrogen isotopes ^{14}N and ^{15}N were separated in photodissociation of ammonia molecules $^{14}\text{NH}_3$ and $^{15}\text{NH}_3$. The method was proposed by Ambartsumyan and Letokhov (IREN J. Quant. Electr., QE-7, 305, 1971; Appl. optics, 11, 354, 1972) as a procedure for selective action of radiation on matter and consists in the following: Monochromatic emission of frequency ν_1 selectively excites oscillatory transition of molecules of only one isotopic composition. The molecules are simultaneously exposed to light of frequency ν_2 whose quantum energy is sufficient for photodissociation of only the vibrationally excited molecules. A diagram of the experiment is given and explained.

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Acc. Nr: **AP0043665**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 2, pp 441-455

INVESTIGATION OF THE EMISSION SPECTRUM
OF A He — Xe LASER WITH NONRESONANT FEEDBACK

Ambartsumyan, R. V.; Bazhulin, S. P.;
Basov, N. G.; Letokhov, V. S.

The emission spectrum of a continuously-operating He — Xe laser ($\lambda = 3.51$ microns) is experimentally investigated from the viewpoint of obtaining nonresonant feedback operating conditions. Two types of cavities are investigated: 1) a system consisting of a scatterer and mirror and 2) a system of two spherical mirrors with a scatterer between them. Operation conditions with nonresonant feedback are obtained in a laser with a quasiconcentric cavity and a scatterer. The generation frequency in this case could be maintained in the vicinity of the maximum of the amplification line with an accuracy to ± 1 Mc/s. irrespective of variation of the geometrical size of the laser. In conclusion the possibility of feedback due to resonance scattering on the amplifying particles themselves is considered.

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AMBARTSUMYAN, R. V., et al., Zhurnal Eksperimental'noy i Teoreticheskey Fiziki, Vol 15, No 6, 20 Mar 72, pp 336-339

molecules, as well as selective photodissociation of excited molecules, the red boundary of photoabsorption of which is shifted by 8,000-9,000 cm^{-1} .

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AMBARTSUMYAN, R. V., APATIN, V. M., and LETOKHOV, V. S.

"Selective Laser Excitation of High Oscillating Levels of HCl Molecules"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 6,
20 Mar 72, pp 336-339

Abstract: This article reports the first successful experiments in direct, selective laser excitation of the third oscillating level of the HCl molecule ($E_{ex} = 1.04$ ev) with absorption of the laser radiation at the second oscillating overtone of the molecule. The extremely high selectivity of this process allowed molecules with predetermined isotopic composition to be excited. The experiment consisted in selective optical pumping of the HCl molecule in the oscillating band $v = 0 \rightarrow v = 3$ by the radiation of a powerful laser with frequency tuned to the near IR area and detection of the excited molecules by means of their IR luminescence in the oscillating transitions $v = 3 \rightarrow v = 2$ and $v = 2 \rightarrow v = 1$. The dependence of the luminescence intensity-pumping intensity ratio on pumping wavelength was measured. This method of selective excitation of higher oscillating levels of HCl molecules of predetermined isotopic composition allows selective chemical reaction of molecules having excess oscillating energy of about 1 ev with other atoms and

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AMBARTSUMYAN, R. V., LETOKHOV, V. S., MAKAROV, G. N., PLATOVA, A. G.,
PURETSKIY, A. A., and TUMANOV, O. A.

"Investigating the Excitation of Oscillatory Levels in $N^{14}H_3$ by Radiation
of a CO_2 Laser"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No 3, 1973, pp
771-784

Abstract: The difficulty in the way of developing a precise explanation of the processes leading to the dissociation and chemical reactions of molecules excited by infrared radiation is the result of the paucity of effective methods for investigating the oscillatory state. In this paper, a direct method is developed for studying the population of oscillatory molecule levels from the intensity of the absorption lines in molecular transitions from the oscillatory state to the excited electronic state. Experiments for studying the population change of oscillatory levels in the NH_3 molecule under the excitation of a CO_2 laser are described, and a diagram of the experimental apparatus is given together with an explanation of its operation. The electron-oscillatory transmission spectrum of ammonia in the 2000-2250 Å range with and without the laser is produced. The theory of the phenomenon is developed and its results compared with the experimental results.

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USSR

AMBARTUMYAN, R. V., Institute of Mathematics of the Armenian SSR

"On Random Fields of Segment and Random Mosaics on a Plane"

Moscow, Teoriya Veroyatnostey i yeye Primeneniya, Vol 18, No 3, Jul-Sep 73,
pp 515-526

Abstract: Random mosaics are random fields of segments that, with probability 1, partition the plane into convex bounded polygons. This article focuses on the types of intersections between segments that occur in such mosaics. Much of the article is concerned with proving a single theorem; that for any $PC I_0$ the probability that the mosaic has no non-trivial intersections (where a trivial intersection is defined as an intersection of two segments, both of which lie on the same line) is less than 1, while for certain mosaics only x-shaped or t-shaped intersections can exist.

The first version of this work appeared in "Random Fields of Segments and Random Mosaics on a Plane", Proceedings of the Sixth Berkeley Symposium on Mathematical Statistics and Probability, Volume 3, 1972.

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USSR

UDC 615.779.9

SHAKARYAN, G. A., NAVASARDYAN, A. A., SEDRAKYAN, R. O., and AMBARTSUMYAN, L. A., Yerevan Zooveterinary Institute

"The Effect of Monomycin and Paratyphoid Serum on the Preventive Properties of Blood Serum"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 24, No 11, 1971, pp 109-110

Abstract: Mice were administered blood serum from rabbits infected with Salm. ent. Gartneri v. dublin and 1) treated with monomycin, 2) treated with monomycin and paratyphoid serum, 3) treated with paratyphoid serum, and 4) not treated; within 24 hours the mice were infected with LD₅₀ of Salmonella. dublin. The survival rates were 80% in the first group, 70% in the second group, and 65% in the third and fourth groups. In the control group, 40% of the mice survived. The nonsurvivors in the fourth and control groups died sooner than the nonsurvivors in the other groups. It is concluded that monomycin and paratyphoid serum do not inhibit increase in the preventive properties of rabbit serum and that monomycin augments these properties.

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Oncology

USSR

UDC 616.00.6

MARKUZE, I. I., AMBARTSUMYAN, R. G., and PIRUZYAN, L. A., Institute of Chemical Physics, Academy of Sciences USSR

"The Variation in K, Na, and Ca Ion Concentrations in the Ascitic Fluid of Animals With Tumors Following the Action of a Constant Magnetic Field"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 2, Mar/Apr 72, pp 268-272

Abstract: White mice were inoculated with tumor cells from the ascitic form of Sarcoma 37 and then, 1-13 days after inoculation, were exposed to a constant magnetic field of $5 \cdot 10^3$ oersteds for periods of 3-5 days. At various time intervals after cessation of exposure to the field, the mice were examined for changes in the concentrations of potassium, sodium, and calcium ions in the extracellular ascitic fluid. Statistically reliable increases of up to 50% were observed in the concentration of potassium ions. Given the same duration of exposure to the magnetic field, greater increases occurred during the early stages of development of the tumor and when measurements were taken immediately following exposure to the field. In fact, by the 6th day after cessation of exposure an increase in potassium ions could no longer be observed. The concentrations of sodium and calcium ions did not vary.

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USSR

DOVLATYAN, V. V., Armyskiy Khimicheskiy Zhurnal, Vol. 24, No. 1, 1970, pp 49-53

acid, m.p. 112-113°, a mixture of m-chlorophenylisocyanate, pyridine and pyridine was left standing at room temperature overnight, the benzene was added and the mixture heated for 3-4 hrs at 80-90°. The authors showed that the products described by I. G. KHASKIN and K. D. SHVETSOV-SHCHERBINA et al., did not correspond to the claimed structures.

USSR

UDC: 547.495.1 + 632.5.01

DOVLATYAN, V. V., and ANEARTSUMYAN, E. N., Armenian Agricultural University, Yerevan, Ministry of Agriculture USSR

"Synthesis of Pesticides. XXVI. Synthesis of α -cyanomethyl- α -methyl ester"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol. 23, No. 1, 1979, pp. 1-2.

Abstract: To a mixture of 2.38 g phenylisocyanate and 1.13 g p-chlorophenylamine, 0.025 g pyridine was added with stirring and cooling, and the mixture was then left standing overnight. The reaction product was dissolved in ether, filtered, washed, dried, and evaporated to yield 2.3 g of α -cyanomethyl- α -methyl ester of phenylcarbamic acid, m.p. 82-83°. Analogously, the α -cyanomethyl- α -methyl ester of p-chlorophenylcarbamic acid, m.p. 96-100°, and the α -cyanomethyl- α -methyl ester of phenyl- (m.p. 77-78°) and p-chlorophenylcarbamic acids (m.p. 105-106°) were obtained. The α -cyano- α -methylethyl ester of phenylcarbamic acid, m.p. 136-137°, was obtained by mixing phenylisocyanate, acetone cyanohydrin and pyridine, and letting the mixture stand at room temperature for 5 days. Analogously, this type ester of p-chlorophenylcarbamic acid, m.p. 147-148°, was obtained. To obtain the α -cyanomethyl ester of p-chlorophenylcarbamic

USSR

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UDC: 647.41 + 577.41.1
647.41.1

DOVLATYAN, V. V., and AMBARTSUMYAN, E. N., Armenian Agricultural Institute, Yerevan, Ministry of Agriculture USSR

"Pesticide Synthesis. XXVIII. Intramolecular Cyclization of α -Cyanoalkyl-N-arylcarbamates"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 23, No 2, 1979, pp 176-179

Abstract: Heating α -cyanoalkyl-N-aryl (or methyl)carbamates in pyridine in the presence of pyridine or red mercury oxide, yields oxazolidinone derivatives which form by intramolecular cyclization. This reaction may also take place in some cases on standing at room temperature for 10-30 days in all cases where the ether solution is saturated with dry hydrogen cyanide. The position of a substituent on the phenyl ring has a substantial effect on the rate of cyclization. The hydrochlorides of these compounds hydrolyze easily in water, yielding 2,4-diketo-3-aryl-5-alkyloxazolidinones. The presence of an aryl group directly attached to nitrogen was found necessary for cyclization, since α -cyanoalkyl-N-benzoylcarbamates failed to give cyclic products.

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USSR

DOVLATYAN, V. V., et al., Armysanskiy Khimicheskiy Zhurnal, Vol 23, No 3, 1970, pp 295-296

Potash dehydrochlorination of α -cyano- β , β -trichloroethyl-N-methylcarbamate produces α -cyano- β , β -dichlorovinyl-N-methylcarbamate, while sodium cyanide as the dehydrochlorinating agent gives 2-oxo-3-methyl-4-imino-5-dichloromethylenoxazolidine. Dissolution of 2-oxo-3-aryl(methyl)-4-imino-5-dichloromethylenoxazolidine chlorohydrates in water produces the corresponding 2,4-dioxo-3-aryl(methyl)-5,5-dichloromethylenoxazolidines.

USSR

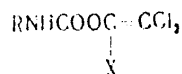
UDC 547.495.1+632.938

DOVLATYAN, V. V., and AMBARTSUMYAN, E. N., Armenian Agricultural Institute, Yerevan, Ministry of Agriculture USSR

"Synthesis of Pesticides. XXVII. The Problem of Dehydrochlorination of α -Cyano(carbethoxy)- β, β -trichloroethyl-N-aryl (benzoyl, methyl)carbamates"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 23, No 3, 1970, pp 295-296

Abstract: The paper is a report on synthesis of α -cyano(α -carbethoxy)- β, β -dichlorovinyl-N-substituted carbamates with the general formula



X-CN, COOC₂H₅, R-CH₃, C₆H₅O, C₆H₅

Synthesis was achieved by interacting chloral cyanohydrin or ethyl trichlorolactate with isocyanates in the presence of triethylamine as a catalyst. It is shown that interaction of α -cyano- β, β -trichloroethyl-N-arylcarbamates with dehydrochlorinating agents produces 2-oxo-3-aryl-4-imino-5-dichloromethylenoxazolidines.

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USSR

DOVLATYAN, V. V., et al, Sintez pestitsidov. XXVII. K voprosu degidrokhlorigirovaniya α -tsian-(ili α -arbetoksi)- β, β, β -trikhloretil-N-aril (ili benzoil i metil) karbomatov, Yerevan, 1969, 15 pp, 3 bibliogr. entries (from RZh-Khimiya, No 14, 25 Jul 70, Abstract No 14 N734)

A normal product of dehydrochlorination -- α -cyano- β, β -dichloro-vinyl-N-methylcarbamate -- is produced during dehydrochlorination of α -cyano- β, β, β -trichloroethyl-N-methylcarbamate by KOH, and with the use of NaCN a product of its intermolecular cyclization, 2-oxo-3-methyl-4-imino-5-dichloromethyleneoxazolidine is formed. During dissolving in water, chlorhydrates of 2-oxo-3-aryl-(or methyl)-4-amino-5-dichloromethyleneoxazolidines, while cleaving along the place of imine function, are transformed into the corresponding 2,4-dioxo-3-aryl(or methyl)-5-dichloromethyleneoxazolidines.

Author's Resume

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USSR

UDC 632.95

DOVLATYAN, V. V., AMBARTSUMYAN, E. N., Editorial Board of "Armenian Chemical Journal," Academy of Sciences Armenian SSR

"Synthesis of Pesticides. XXVII. On the Question of Dehydrochlorination of α -Cyano-(or α -Carbethoxy)- β, β, β -trichloroethyl-N-aryl (or Benzoyl and Methyl) Carbamates"

Sintez pestitsidov. XXVII. K voprosu degidrokhlorigirovaniya α -tsian-
(ili α -arbetoksi)- β, β, β -trikhloretill-N-aril (ili benzoll i
metil) karbomatov (cf. English above), Yerevan, 1969, 15 pp, 3 bib-
liogr. entries (from RZh-Khimiya, No 14, 25 Jul 70, Abstract No
14 N734)

Translation: 2-oxo-3-aryl-4-amino-5-dichloromethyleneoxazolidinones are formed during the interaction of α -cyano- β, β, β -trichloroethylcarbamates with dehydrochlorinating agents (alkali, tertiary amines, and cyanides of alkali metals). Under analogous conditions, α -carbethoxy- β, β, β -trichloroethyl-N-arylcarbamates and α -cyano- β, β, β -trichloroethyl-N-benzoylcarbamate are dehydrochlorinated and they form α -carbethoxy- β, β -dichlorovinyl-N-arylcarbamates and α -cyano- β, β -dichlorovinyl-N-benzoylcarbamate.
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USSR

DOVLATYAN, V. V., and AMBARTSUMYAN, E. N., Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 1, 1971, pp 42-44

from water yields dicarbethoxymethyl oxalate, m.p. 58-59°. Analogously di- α -carbethoxyethyl oxalate, m.p. 63-64°, was obtained.

USSR

UDC 547.461.2+547.47

DOVLATYAN, V. V., and AMBARTSUMYAN, E. N., Armenian Agricultural Institute, Yerevan

"Pesticide Synthesis. Reaction of Oxalyl Chloride With Aldehyde and Ketone Cyanohydrins"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 1, 1971, pp 42-44

Abstract: In studying the reaction of oxalyl chloride with aldehyde and ketone cyanohydrins it was found that in contrast to phosgene these compounds do not form cyclic imidochlorides, but only di(cyanoalkyl) oxalates. To 3.2 g oxalyl chloride in 12 cc benzene a mixture consisting of 4.25 g acetone cyanohydrine and 4 g pyridine cooled to 0° was added dropwise with stirring. The precipitate was removed by filtration, washed and dried. The product -- di- α -cyano- α -methylethyl oxalate, m.p. 83-85° and di- α -cyanoethyl oxalate, m.p. 98-100° were obtained. To obtain dicarbethoxymethyl oxalate, a mixture of 1.7 g of dicyanomethyl oxalate, 0.92 g ethanol and 20 ml ether was saturated with HCl and left to stand overnight. The crystals obtained were removed by filtration, washed and dried; the product -- an iminoester hydrochloride -- melts at 73-75°, is soluble in water, on recrystallization 1/2

USSR

UDC 632.95

DOVLATYAN, V. V., and AMBARTSUMYAN, E. N., Armenian Agricultural Institute

"Synthesis of α ,N-Acyl(azoyl)amino- β , β -dichloracrylonitriles"

USSR Author's Certificate No 297284, Filed 15 Nov 67, Published 12 Apr 72
(from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom (I, L-S), No 1(II),
1973, Abstract No 1N501P by T. A. Belyayeva)

Translation: Compounds $RCONHC(CN) = CCl_2$ (I) (R = alkyl, chloralkyl, phenyl) which serve as intermediate products for the synthesis of pesticides and high-molecular weight compounds, are synthesized in the reaction of $RCONHCH(Cl)CCl_3$ (II) with MCN (M = Na, K). Example. To solution containing 10.8 g NaCN in 35 ml of water, 22.5 g of II (R = Me), m.p. 127-128°C, is added during continuous mixing and cooling of the solution with ice and NH_4Cl . The reaction mixture is stirred for 8-10 hrs, the residue is filtered, and dried in air. The yield of I is 16.1 g (R = Me), m.p. 134-135°C (PhMe). In a similar way I was prepared (R, yield in %, m.p. in °C are given in that order): $ClCH_2$, 70, 124-125; CCl_3 , 63.8, 132-133; $PhNH$, 64.8, 184-186; ClC_6H_4NH , 77.8, 216-217. Infrared absorption bands for the synthesized compounds are presented.

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USSR

UDC 8.74

AMBARTSUMYAN, A. M.

"Two-Dimensional Ready-Access Memory of a Specialized Automatic Translation Machine"

Tr. Vychisl. tsentra AN ArmSSR i Yerevan. un-ta (Works of the Coputation Center of the Armenian SSR Academy of Sciences and Yerevan University), 1972, No 7, pp 111-119 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V559)

Translation: The problems of constructing a two-dimensional ready-access memory having the possibility of access to individual memory cells and to the same bits of all cells are discussed.